



# What's new in ICT, education and popular culture?



Lindy Hathaway  
Dickson College  
Moderation Day  
13 August 2015



# ACT Chief Digital Officer

- John Cummings – first CDO in ACT, appointed August 2015
- He will lead the whole of government digital strategic direction and the enhancement of ACT as a truly Smart City
- Roll out of CBRfree wifi network, digital arts and digital spaces, improvement of digital access and promotion of digital skills
- 3 million library items borrowed in the ACT with 2.09 million visitors (2013-2014)



# Robots are go!

- 3D printer trend, drone trend, activity tracker trend – now it's the smaller robot trend
- Investments & crowdfunding campaigns for robot startups are surging – \$688 million this year from venture capitalists for startups making robot accessories, consumer robots and artificial intelligence
- We want robots at home that anticipate thoughts, read stories to the kids and help grandma



<http://www.cnet.com/au/news/funded-the-crowd-wants-their-robots-at-home-and-under-the-covers/>

# Robot startups

- **Jibo** – startup founded by MIT professor Cynthia Breazeal – makes a 27cm armless rotating robot that can talk and read stories to your kids, can recognise your face and “make you feel better” – due late 2015 (received \$37 million from VCs and \$3.7 million from 7 422 Indiegogo supporters)



- **Luna** – makes a smart bed cover that learns your sleep habits, makes adjustments for you and turns on the aircon (\$1.3 million from 5000 supporters)
- **Sleepace** – makes \$149 RestOn device that goes between the sheet and mattress where it tracks your heart rate, movements and sleep cycle and gives advice (\$7 million from VCs)



<http://www.cnet.com/au/news/funded-the-crowd-wants-their-robots-at-home-and-under-the-covers/>

# HitchBOT

- The cute dustbin-shaped hitchhiking robot was vandalized and destroyed in Philadelphia, 2 weeks after setting off from Massachusetts on 17 July to cross the US
- HitchBOT – a Canadian social experiment - had completed hitchhiking journeys across Canada, Germany, Holland
- Said HitchBOT: “I guess sometimes bad things happen to good robots...but my love for humans will never fade”
- HitchBOT attended a wedding and a comics convention and spent a week on the road with a heavy metal band
- He had one sibling – KulturBOT, who visits art galleries and tweets images of the artworks



<http://www.independent.co.uk/news/world/americas/hitchbot-us-tour-ends-as-hitchhiking-robot-is-vandalised-in-philadelphia-10433565.html>

# Stop the killer bots now!

- Open letter 28/7/15 from more than 1000 leading researchers in artificial intelligence (AI), robotics and technologists and 11 000 others – calling for a ban on offensive autonomous weapons – “killer robots”
- Signatories include Stephen Hawking, Steve Wozniak (Apple), Elon Musk (SpaceX and Tesla), Jaan Talinn (Skype) and Noam Chomsky
- The letter urges the UN to support the ban and argues that autonomous weapons will be feasible within years and they will revolutionise warfare for the worse

Or an alternative viewpoint?

<http://theconversation.com/why-we-should-welcome-killer-robots-not-ban-them-45321>



The letter:

<http://theconversation.com/open-letter-we-must-stop-killer-robots-before-they-are-built-44577>

# Facebook drone

- Internet.org - Facebook program aims to provide internet access to the two-thirds of the world that do not have a reliable connection
- Aquila program - aims to provide internet access to 10% in the world who do not have any internet access
- Aquila aircraft - solar-powered drone with a wingspan of a Boeing 737 but weighing less than a car
- Can stay in the air for 3 months at a time, hovering at 18 000-27 000m – not affected by weather
- The Aquila aircraft beams down internet connectivity using a new fast and accurate laser

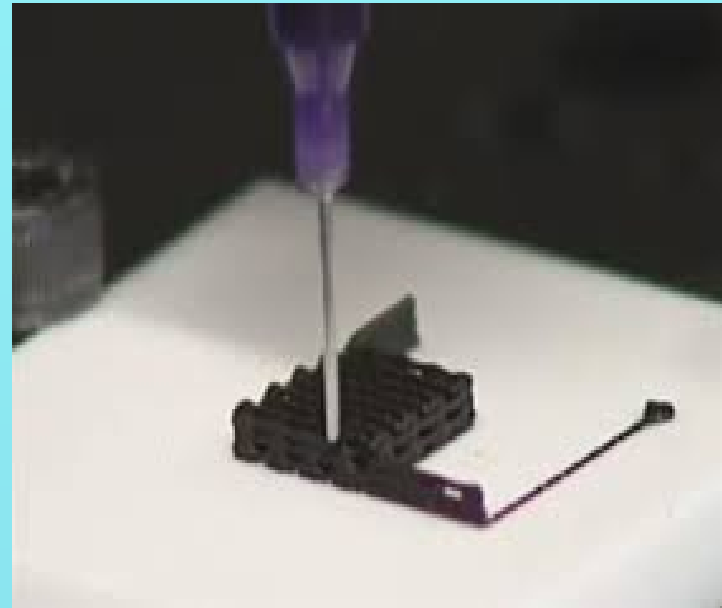


<http://www.abc.net.au/news/2015-07-31/facebook-drone-to-beam-internet-from-sky/6661756>



# 3D objects made from graphene

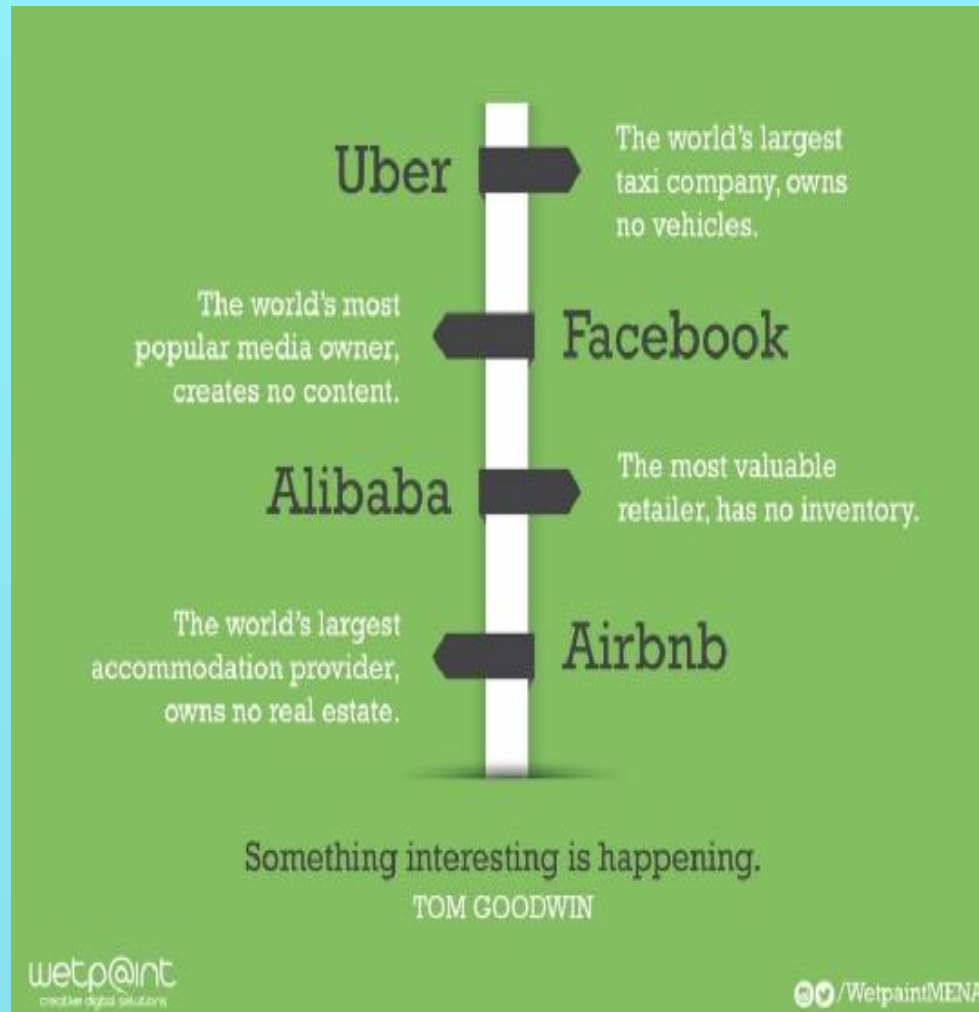
- Graphene – a single atomic layer of carbon atoms arranged in a hexagonal lattice
- A “wonder material” with extraordinary conductivity, flexibility and transparency – 200 times stronger than steel
- 3D printing using graphene inks, powders and filaments will produce light and extremely strong objects
- A new 3D printing process using graphene will be used to create very small innovative electronic devices eg. photodetectors and nano antennas



<http://www.graphene-info.com/graphene-3d-printing>



# Interesting times....



# Global Internet Report 2015

- More than 90% of the world's population is covered by at least one mobile network
- 3 billion internet users
- 84% of tablets and 72% of mobile phones are Android
- Tablet sales will exceed PC sales within a year
- By 2019, 71% of the world's population will be using mobile networks
- Issues include: neutrality, copyright, low-cost access, spectrum availability, mass sharing of personal data from location-sharing apps



<http://www.smh.com.au/digital-life/digital-life-news/global-report-finds-mobile-rules-the-internet-and-android-rules-mobile-20150722-gicler.html>

# Google

- Pledges \$1 million to boost science, technology, engineering and maths in Australia
- Google will work with 3 not-for-profits to inspire under-represented students to careers in STEM
- Programs include Australian Indigenous Mentoring Experience for Years 7 & 8; First Robotics Aust. programs in 150 schools; Engineers Without Borders training to 5000 young people with a focus on girls



Keep up with Google:

<http://google-au.blogspot.com.au/>

# Full STEAM ahead!

- Importance of coding as a component of STEAM teaching– Science, Technology, Engineering, Arts & Maths
- #WeSpeakCode Microsoft conference at UTS May 2015 – 7000 students who had to create a flappy bird game
- Microsoft Asia Pacific study – only 32% of Australian students had an opportunity to learn coding in school (lowest figure for all countries surveyed)
- Two-thirds of Australian students said they wanted to know more about coding
- By 2022 a deficit of 12-15 million jobs in STEM fields



“Coding in schools building up a head of steam” 2015, *Education Today*, Term 3.

# Teaching coding

- **Kodu** – programming components; free download
- **Blockley** - by Google; a library of code components
- **Grok Learning** – coding courses
- **Code.org** – many courses for different ages and levels
- **Scope IT Education** – provides courses, instructors, lesson plans, assessment, Macbooks, equipment, internet, weekly 40 min. lessons for 10 weeks (Stages 1-3)
- Teaches coding (Scratch, WordPress, HTML, Javascript, Python, iOS apps), 3D printing, electronics, robotics, digital citizenship
- Entered into partnership with Aust. Primary Principals Association



“ScopeIT education” 2015, *Education Today*, Term 3.

# FabLab @ Lauriston school

- Established one of the first FabLabs in Australia in 2014
- FabLab@Schools program from Stanford University – focus on transformative learning
- Many cross-curricular opportunities – house design; model of an eye
- 3D printer, laser cutter, programming
- Skills of problem-solving, self direction and collaboration – very relevant to workplace skills



“Lauriston FabLab is transformative” 2015, *Education Today*, Term 3.



# Computational Thinking (CT)

**Computational Thinking = critical thinking skills + the power of computing**

- CT involves all disciplines and enhances study across disciplines
- CT gives students the ability to recognise when and how technology can boost their own critical thinking, creative and problem-solving skills in order to find innovative solutions to real-world problems
- Many teachers already apply CT to tasks and fields of study but are not even aware of it
- CT will be a necessity for the workforce of the 21<sup>st</sup> century
- Google's new Computational Thinking Course – helps educators learn about CT, how it differs from computer science and how it can be integrated into various subjects; 5 units and a 2 part final project  
<https://computationalthinkingcourse.withgoogle.com/preview>
- It's time to demystify CT:  
<https://www.iste.org/explore/articleDetail?articleid=501&category=Lead-the-way&article=>





# Game on!

## **Bond University Digital Australia Report 2016**

- Gaming is massively popular with all ages and is a growing industry
- 68% play video games – average age 33 years
- 47% of gamers are female
- Half of all players also watch video games
- International Defense of the Ancients 2 Championship (DotA2) in Seattle in August - \$22 million in prizemoney
- Twitch.tv (now owned by Amazon) – 100 million visitors per month who watch others play video games online and e-sports



<http://www.igea.net/wp-content/uploads/2015/07/Digital-Australia-2016-DA16-Final.pdf>

# Minecraft

- Global phenomenon since 2009 – owned by Microsoft since Sept 2014
- Average player age 29
- Teachers online portal now being developed
- Offers many educational benefits – exploring maths concepts, visiting civilisations, creating story settings...
- Encourages collaboration, problem solving, digital citizenship, leadership skills...



Short video: <http://www.mcvuk.com/news/read/microsoft-launching-minecraft-program-for-teachers/0152049>

<http://education.minecraft.net> (not fully up yet)

# HoloLens

- Augmented Reality (AR) headset – available 2016
- Players visualise and manipulate digital images overlaid on the real world
- Explore games in 3D
- “Mixed reality” – holograms integrate with our world
- Voice commands, gestures, Xbox controller
- New ways to create, communicate, work and play



The possibilities of HoloLens (2 min. video):

<https://www.microsoft.com/microsoft-hololens/en-us>

Playing Minecraft with HoloLens (3 min. video):

<http://www.engadget.com/2015/06/15/microsoft-minecraft-hololens/>

# iPadpalooza – Austin, Texas, 23-25 June 2015

## Conference theme: *Keep iPads weird*

<http://ipadpalooza.com/>

**Creative iPad use** - presentation by Kel Hathaway:

<http://www.slideshare.net/kelgator/creative-i-pad-use>

## Presenter materials:

<http://ipadpalooza.com/presenter-materials/>

## Trending:

- Smore – newsletter site; good for putting lesson material on a single page
  - Kahoot – quiz, discussion, survey tool
  - Canva
  - Sketchnoting – taking notes pictorially
- <http://www.schrockguide.net/sketchnoting.html>
- Flipped classroom

## One liners:

- Respecting failure enables you to embrace curiosity
- They can't, yet
- Relinquish control over elements students can make decisions on
- The best of anything will flop if overused
- Creativity is personal, we all exhibit it in our own ways
- What would you do if you were not afraid?



# Guy Kawasaki @ iPadpalooza

**Guy Kawasaki** (formerly of Apple, now with Canva)

## 10 things I learned from Steve Jobs

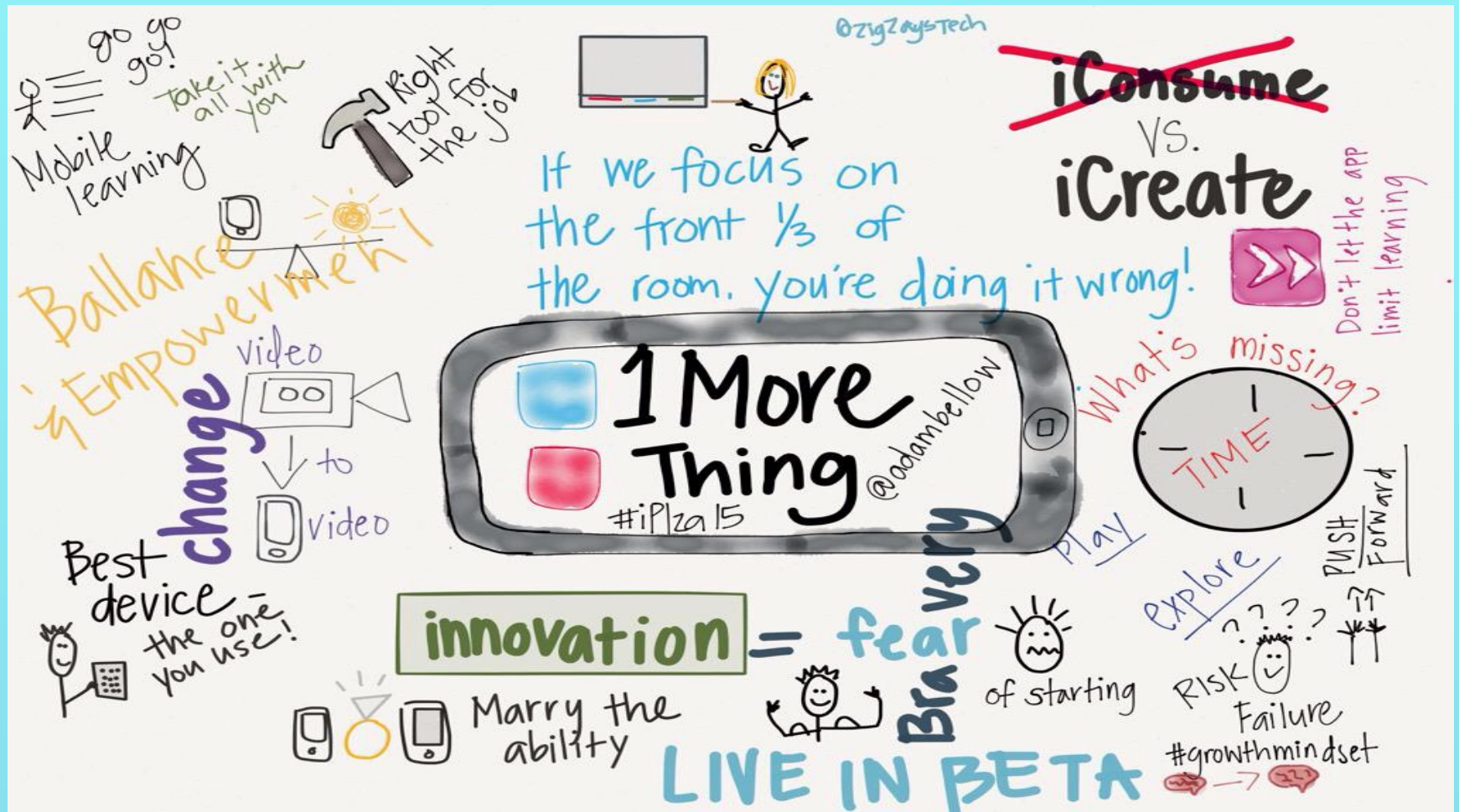
1. Innovators ignore naysayers
2. Customers can't tell you what they need
3. Innovation happens on the next curve
4. Design counts
5. Big challenges beget big changes
6. Less is more
7. Changing your mind is a sign of intelligence
8. Value does not equal price
9. A players hire A+ players
10. Marketing = unique value



<https://www.dropbox.com/s/opq4wpaleoyvgu0/06-24-2015iPadalooza.pdf?dl=0>

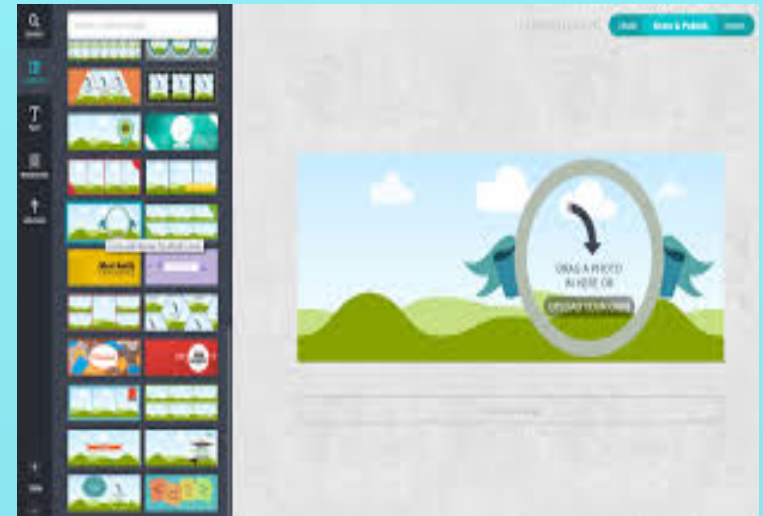


# Adam Bellow @ iPadpalooza



# Canva – free graphic design website

- Founded 2012 in Australia – “a simple new way to design”
- Easy to use drag-and-drop interface
- Access to over 1 million photographs, graphics and fonts – or upload your own
- Tools can be used for web & print; collaborate with anyone
- Used by non-designers and professionals – enables anyone to become a designer





# EdmodoCon – 4 August 2015 online

<https://www.edmodocon.com/>

- Started 2008; now has 50 million users
- **Blended Learning and Competency Based Learning** – CBL makes time the variable; available anywhere anytime; personalised. Technology is an enabler not a prime motive. Reimagine learning spaces – do we even want classrooms?
- Use Edmodo for **written debates** – students must prepare arguments for both sides; not told till day of debate which side they are on
- Edmodo partnering with **Bublish** so students can learn from and with authors

<https://www.bublish.com/>



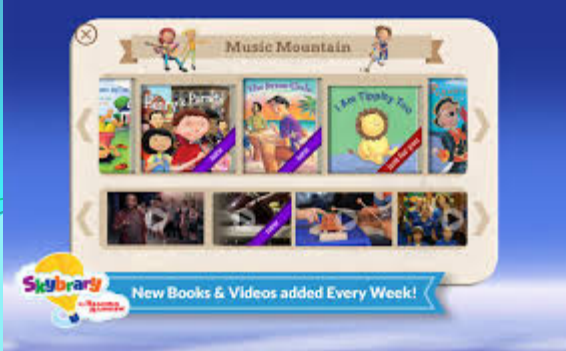
# CharacTOUR

[www.charactour.com](http://www.charactour.com)

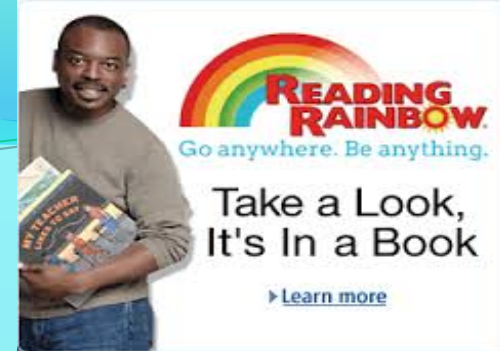
- A new way to think about movies, TV shows, books and video games
- Online database of fictional characters – each character gets their own profile page
- 4 500 spoiler-free profiles about characters' origins, interests, skills and journeys
- Take personalised match quizzes; If you like ....you may like ....; character mash-ups; browse by genre etc; vote



<https://boingboing.net/2015/08/05/new-website-charactour-is-an-e.html>



# Reading Rainbow



- Award winning US children's TV series 1983-2006 hosted by LeVar Burton
- Children's literature and books were explored through stories and video segments
- Reading Rainbow iPad app released 2012 – children read or listen to books, view field trips & earn reading rewards – the #1 educational app
- Kickstarter campaign May 2014 to make app available on the web, smartphones, games devices and a classroom version free for disadvantaged US classrooms
- \$5.4 million raised from 105 857 backers; \$1 million from Seth MacFarlane; \$70 000 direct contributions
- Holds Kickstarter's record for most backers and 8<sup>th</sup> highest amount ever raised (1/6/15)
- Now called Skybrary by Reading Rainbow – 500 interactive children's books and 150 videos (ages 3-9); \$10pm or \$30 (6mths)
- “The web is the most powerful tool invented in the history of civilization, so why not use it for the highest good for as many souls as possible?” (Burton)

<http://www.cnet.com/au/news/reading-rainbow/>



# New English textbooks @ Dickson College

## Graphic novels

Fun home – Alison Bechdel

Persepolis – Marjane Satrapi

## Crime

The final solution – Michael Chabon

Blackrock (play) – Nick Enright

The white tiger- Aravind Adiga

Fetish – Tara Moss

## Lives and times

Joe Cinque's consolation – Helen Garner

## Horror

The shining – Stephen King

Dracula – Bram Stoker

Frankenstein – Mary Shelley

## Children's Literature

A monster calls – Patrick Ness

## English / Literature

Saving Francesca – Melina Marchetta

The secret life of bees – Sue Monk Kidd

Black juice – Margo Lanagan

Fever pitch – Nick Hornby

## Short stories

The dog of marriage – Amy Hempel

How we are hungry – Dave Eggers

## Poetry

The world's wife – Carol Ann Duffy

# Movies

- Australian films doing well
- **Paper planes** – Stars Ed Oxenbould
- **The water diviner** – Stars Russell Crowe
- **Last cab to Darwin** – Stars Michael Caton. A cabbie heads to the NT to take advantage of euthanasia laws
- **Oddball** – Stars Shane Jacobson. Inspired by the true story of a Warnambool chicken farmer who taught his dog to protect an endangered colony of penguins near the Great Ocean Road
- **The dressmaker** – Stars Kate Winslet, Sarah Snook, Liam Hemsworth, Judy Davis. Revenge comedy set in the outback in the 1950s - “*Unforgiven* with a sewing machine”.



# Movies

- **The light between oceans** – Based on the novel by M.L. Stedman. Stars Michael Fassbender, Alicia Vikander and Rachel Weisz. Directed by Derek Cianfrance. A lighthouse keeper and his wife, living off the coast of WA, keep a baby girl who washes up in a lifeboat. Filmed in NZ & Tas.
- **Holding the man** – Stars Ryan Corr. Based on the memoir by writer, actor and activist Timothy Conigrave, his relationship with John Caleo and the devastating effect of AIDS. Rated R.
- **Unity** – Documentary by Shaun Monson. Narrated by 100 actors, artists, athletes, authors, musicians, military personnel, business people. Explores humanity and why we don't seem to be able to get along.





# Movies

- **Steve Jobs** – Stars Michael Fassbender, Kate Winslet and Seth Rogen. Directed by Danny Boyle; written by Aaron Sorkin. Adapted from the biography by Walter Isaacson. Due Oct. 2015.
- **Maze runner 2: the scorch trials** – Stars Dylan O’Brien. Due Sept 2015.
- **Spectre** – New James Bond film. Stars Daniel Craig & Christoph Waltz. Directed by Sam Mendes. Due Nov 2015.
- **Star Wars episode VII: the force awakens** – Directed by J.J.Abrams. Due Dec 2015.
- **Ghostbusters** - Who ya gonna call? Female ghostbusters. Due 2016.

